PAVEMENT FORM 4 TRIAL 2 EXAMINATION 2021/2022
Kenya Certificate of Secondary Education (K.C.S.E)
MARKING SCHEME PHYSICS

1. angle =180-(90+20)= 70° ✔2
2. (a) Long sightedness ✔1
   (b) Introducing a concave lens ✔1
3. The plain sheet of paper absorbs some light while the mirror doesn't. it reflects all the light. ✔1
4. Rectilinear propagation of light. ✔1
5.

   ✔1

   ✔1

   ✔1

6. Has a higher emf per cell than nickel-iron accumulator.
7.   ✔1

   ✔1

8. Prevents the risk of electric shock in case of faulty connection of electrical current. ✔1
9. The positively charged rod _attracts the negatives and "repels" the positives_.✔1
   ✔1
   When earthed, _electrons flow from the earth and neutralize the positive charges_. ✔1
   The electroscope acquires negative charge. ✔1
10. - The angle at which the conductor cuts the magnetic field. ✔1 _for one correct_
    -   The length of the conduct
11.

Type of radiation	Detector	Use
✔ Microwave	Crystal detector, solid state diodes	- _Radar_ - _point to point communication links_ - _wireless networks_ - _remote sensing_
Infra red ✔1	Thermopile, blackened bulb thermometer	Warmth sensation
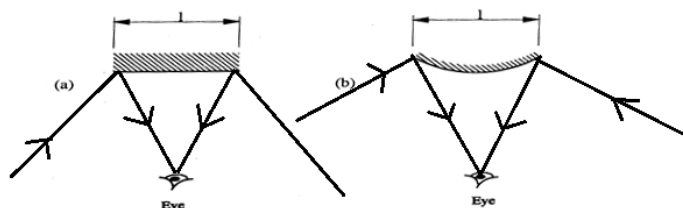
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12. The negative charges induce positive charges on water by repelling the negative charges ✓**1** This causes the stream to be attracted towards the rod ✓**1**

13. .**a)** Whenever there is change of magnetic flux an emf is induced whose magnitude is proportional to the rate of change of flux ✓**1**

   b) i)   =✓**1**

                 ✓**1**

          ✓**1**

       ii) Power Input = Power Output

           VI = Power Output ✓**1**

           $240 \times 0.5 = 12 \times I$ ✓**1**

           I = 10A ✓**1**

       iii) - by laminating the core ✓**1**

   c) E = Pt

        $E = 1.5 \times 30 = 45$kwh ✓**1**

        Cost = (45×8)sh ✓**1**

         ✓**1**

   d)
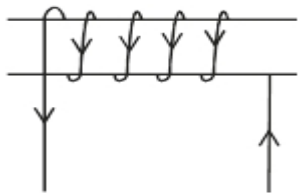
             ✓**1** *for correct <u>arrow directions</u>*

14. (i) ✓**1**

     ✓**1**

     ✓**1**

  (ii)

     = ✓**1**

     = 6.857 V✓**1**

(iii) ✓**1**

     ✓**1**

(b) (i)

(ii) **1**

   1

   () **1**

(iii)

   = **1**

   () **1**

15. (a) -   The angle of incidence must exceed the critical angle **1**
   -   Light must travel from optically denser to a rarer medium. **1**

(b) (i) **1**

   1

(ii) **1**

   1

   1

1

   1

1

16. (a) (i)   **1**
      1
         1

   (ii)   **1**

PAVEMENT PUBLISHERS 2021/2022 Page 3

1

(b) (i) the reading of the voltmeter increases from zero to attain a maximum of 4.5V**1**

   (ii) the reading increases to 4.5V then decreases to a lower value. **1**

   (ii) C1 is charged by the battery Pd increases until the capacitor is fully charged. **1**

(c) (i) deflects then reduces to zero**1**

   (ii) electrons flow from plate A of the capacitor towards the positive terminal of the   battery. **1**

(d) (i) 0V**1**

   (ii) 5V**1**

17. **(a)** Transverse-vibration of wave particles is perpendicular to the direction of wave motion✓

   Longitudinal- displacement of the wave particles is perpendicular to the direction of the wave motion✓

   (b)   ✓**1**

       =

   ✓**1**

   (c) ✓**1**

✓**1**

       d = m✓**1**

   (d)